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Mandatory Financial Reporting Environment and Voluntary Disclosure: Evidence from Mandatory IFRS Adoption

Balakrishnan Karthik
University of Pennsylvania

Xi LI
Temple University

Holly YANG
Singapore Management University, HOLLYYANG@smu.edu.sg

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Karthik Balakrishnan
kbalakri@wharton.upenn.edu
The Wharton School
University of Pennsylvania

Xi Li
xili@temple.edu
Fox School of Business
Temple University

Holly Yang
hollyy@wharton.upenn.edu
The Wharton School
University of Pennsylvania

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Abstract

Using the mandatory adoption of International Financial Reporting Standards (IFRS) as an exogenous improvement to mandatory financial reporting, we document evidence supporting a complementary effect between mandatory and voluntary disclosures. We find that firms in countries that adopted IFRS in 2005 experience an increase in both the likelihood and frequency of management earnings forecasts relative to firms in countries that did not mandate IFRS. We also find that the increase in management forecasts is higher in countries where prior local GAAP are more different from IFRS or legal enforcement is stronger. Consistent with the confirmatory role of mandatory reporting, we also find that the increase in management forecasts following IFRS adoption is significantly mitigated for firms in financial industries, whose financial statements are less verifiable due to fair value estimates. Last, we find that the liquidity effect of IFRS is much larger when firms issue more management forecasts, suggesting that voluntary disclosure is an indirect mechanism through which IFRS brings benefits to capital markets.

Keywords: Mandatory disclosure, Voluntary disclosure, Management forecasts, Liquidity, Fair value accounting

1. Introduction

Corporate disclosure is critical for well-functioning capital markets (Healy and Palepu [2001]). Mandated financial reporting and voluntary disclosure are two channels of corporate disclosure by which managers communicate private information with capital markets and both are relevant, as evidenced by stock price as well as liquidity changes associated with the two types of disclosures (Welker [1995], Leuz and Verrecchia [2000], Leuz and Schrand [2009], Balakrishnan, Billings, Ljungqvist, and Kelly [2012]). Understanding this relation is the first step in addressing the long-standing research question on what economic rationale justifies regulating corporate disclosure and whether voluntary disclosure obviates the need for reporting regulations. Several additions to US GAAP have been made since the Securities and Exchange Act of 1934 in response to investors' demand for transparent financial markets. Such reforms typically introduce new rules to modify the content of, and the practices that bring about, firms' mandated financial reports, which in turn would change the level of voluntary disclosure. Given that voluntary and mandatory disclosure are likely interdependent, researchers and regulators cannot assess the economic role of reporting regulations without considering its effect on voluntary disclosure.

Although the two channels of disclosure are inextricably linked, the precise nature of this relation is not well understood. This study investigates the interaction between mandatory financial reporting and voluntary disclosure by employing the mandatory adoption of International Financial Reporting Standards (IFRS) in 2005 as an exogenous change to mandatory reporting to examine changes in firms' voluntary disclosure practices. To measure disclosure, we focus on a discretionary action, namely the extent to which managers provide earnings forecasts, the most prominent performance measure that a firm supplies to investors.

Ex-ante, it is unclear how the mandatory adoption of IFRS could influence management forecasts. On the one hand, mandatory financial reporting and voluntary disclosure can be complements, wherein the former produces verifiable information that improves the credibility of the latter and therefore encourages managers to issue more forecasts, i.e. the confirmatory role of mandatory reporting. Prior studies document improved mandatory reporting quality following IFRS adoption, evidenced by earnings with lower manipulation and higher value relevance, timeliness, and information content (Barth, Landsman, and Lang [2008], Landsman, Maydew, and Thornock [2011]). Therefore, given the evidence that IFRS improves the verifiability of earnings, the complementary view suggests that the mandatory adoption of IFRS should increase management forecasts. On the other hand, mandatory financial reporting and voluntary disclosure could also be substitutes. Managers often use voluntary disclosure to supplement mandatory reporting and communicate their superior knowledge of firms' performance to investors. Compared to domestic accounting standards, IFRS has more extensive disclosure requirements and recognition rules. Disclosures that were previously classified as mandatory may now fall into the mandatory reporting regime under IFRS. In addition, since IFRS produces more timely and value-relevant earnings numbers, the demand for manages to provide supplementary information to help investors better predict future earnings could be reduced. Therefore, IFRS adoption may also lead to fewer management forecasts.

We employ a difference-in-difference research design to examine the impact of mandatory adoption of IFRS on management earnings forecasts. Our treatment sample includes firms from 27 countries that mandated IFRS adoption in 2005 and our control sample includes firms from seven countries that did not mandate the adoption during our sample period. We compare the change in management forecasts issued by firms in the treatment and control

samples after the adoption. We document an increase in the likelihood and frequency of management forecast issuance following the adoption in 2005 in our treatment sample relative to firms in the control group, suggesting a complementary effect between IFRS adoption and voluntary disclosure and the confirmatory role of mandatory reporting. This increase is statistically significant and is robust to various model specifications addressing the concerns about data coverage and sample composition in the pre- and post-adoption periods.

There is considerable heterogeneity in the effects of IFRS due to the diversity in countries' institutional infrastructures. Moreover, fair value oriented rules of IFRS affect certain industries more than others. We exploit this cross-sectional heterogeneity to provide further evidence on the confirmatory role of reporting standards.[2] Our first test examines the effect of IFRS on the disclosure levels of firms in financial industries. An important feature of IFRS is its "fair value" orientation given that these standards make more use of mark-to-market approaches. While fair value accounting is in many ways conceptually appealing, it is often difficult to implement and involves managerial discretion. Under this view, fair value accounting produces financial statements that contain higher noise and lower verifiability relative to those produced under "historical cost" (Watts [2003a**,** 2003b], Ball [2006]). The confirmatory role of reporting standards predicts that the level of voluntary disclosure will be lower in industries that are affected to a greater extent by the fair value accounting aspects of IFRS. Consistent with this argument, we find that the increase in management forecasts following IFRS adoption is significantly mitigated for firms in financial industries, whose assets and liabilities are largely

[2] These cross-sectional tests help alleviate concerns regarding two research design choices that affect any IFRS study – the choice of control group and the fact that all mandatory IFRS adoptions occurred in 2005. The cross-sectional tests we perform help rule out any alternative theories related to the weaknesses in our research design choice.

recognized based on fair value. This finding suggests that fair value accounting is likely to be an impediment to more voluntary disclosure.

We next focus on differences in prior domestic GAAP and legal enforcement within the treatment group. If the positive impact of IFRS adoption on the information environment is larger in countries with bigger changes in accounting standards or stronger legal enforcement, then the confirmatory role of reporting standards predicts that the level of voluntary disclosure will be greater in these countries. Consistent with this argument, we find that the increase in management forecasts following IFRS adoption is larger in countries where the difference between a country's prior domestic accounting standards and IFRS is bigger or legal enforcement, measured by the rule of law index and the European Union membership, is stronger.

We next examine how the relation between mandatory reporting and voluntary disclosure shapes a firm's liquidity. Consistent with prior literature, we first document an increase in liquidity following IFRS adoption. More importantly, we also find that the increase in liquidity is stronger amongst firms that issue more management forecasts. This finding complements prior literature examining the economic consequences of IFRS by identifying an indirect mechanism through which mandatory IFRS adoption also affects capital markets.

Our study makes three contributions. First, it adds to the literature that examines the interplay between mandatory and voluntary disclosure. The mandatory adoption of IFRS is a compelling setting to examine this research question because it is an exogenously imposed event and is unlikely to be affected by disclosure choice.[3] The large scale of adoption, i.e., many companies and countries adopting at the same time, and the dramatic change in financial

[3] Ball, Jayaraman, and Shivakumar [2012a] examine a similar research question using a sample of US public firms. They use the level of audit fees as a proxy for mandatory reporting quality. However, audit fees are endogenous, as managers may choose to commit to a higher level of reporting quality for the same reason that they increase disclosure. Therefore, their study likely documents an association between mandatory reporting and voluntary disclosure rather than a causal relationship.

reporting enhances the setting, as we are able to exploit the variation in differences between prior domestic GAAP and IFRS across countries to investigate the association between voluntary disclosure and changes in mandatory financial reporting. Such a setting cannot be replicated by studies examining the change of voluntary disclosure following changes in accounting standards within a single country, such as the passage of Sarbanes-Oxley Act (SOX) in the US in 2002. Without the cross-sectional variation in the degrees of changes in financial reporting, it is very difficult to disentangle the effect of financial reporting reform from other contemporaneous events that may have a direct or indirect impact on voluntary disclosure.[4] In sum, the mandatory adoption of IFRS in a group of heterogeneous countries serves as a pseudo-natural experiment and allows us to attempt at providing causal evidence between these two constructs.

Second, this paper adds to the literature that examines the effects of IFRS. Thus far, this stream of literature has focused only on properties of mandated disclosure and has ignored the possible impact of the regulatory reform on voluntary disclosure. To the best of our knowledge, this is the first study to examine the impact of IFRS on voluntary disclosure. Further, prior studies generally document a positive effect of IFRS adoption on analysts' information environment and capital markets (e.g., Landsman et al. [2011], Byard, Li, and Yu [2011], Tan, Wang, and Welker [2011]). However, our finding that voluntary disclosure increases after IFRS adoption suggests that the capital market effects of IFRS are partially attributable to improved voluntary disclosure, as it also has positive impacts on the information environment and liquidity (e.g., Welker [1995], Leuz and Schrand [2009], Balakrishnan et al. [2012]). Specifically, our

[4] SOX not only imposed reforms in financial reporting but also contained provisions limiting insider trading and improving corporate governance, which could have direct impacts on voluntary disclosure. For example, Ball et al. (2012a) examine the effect of SOX on investors' responses to management forecasts in their robustness analysis and find evidence consistent with the confirmatory role of mandatory financial reporting. However, they caution that the introduction of SOX could be endogenous to events that may affect financial reporting. Gordon et al. (2006) find that firms voluntarily disclose more information on security activities after SOX, but attribute this finding to the increased focuses on information security after SOX.

finding that the liquidity benefits of IFRS are greater for firms that increase their voluntarily disclosure levels suggests the existence of an indirect mechanism by which IFRS has impacted liquidity.

Third, this paper also adds to the debate on fair value accounting (Watts [2003a], [2003b] Barth et al. [2008]). Recent studies examining the consequences of fair value accounting have focused on its effects on earnings management (Dechow, Myers and Shakespeare [2010]) and information risk (Riedl and Serafeim [2011]). We extend this stream of literature by examining the effect of fair value accounting on voluntary disclosure. The findings that the positive effect of IFRS adoption on voluntary disclosure is mitigated in financial industries, where firms are mostly likely to be influenced by fair value accounting, suggest that fair value accounting may also have unintended consequences on the levels of voluntary disclosure.

The remainder of our paper is organized as follows. Section 2 overviews the relevant literature and discusses our hypothesis development and empirical predictions. Section 3 describes the empirical research design. Section 4 discusses our data, sample and results, including a number of sensitivity analyses. Section 5 concludes the paper.

2. Literature Review and Hypothesis Development

The relation between mandatory and voluntary disclosure is ambiguous. On the one hand, mandatory and voluntary disclosures can be considered as complements. Gigler and Hemmer [1998] show how mandatory reporting complements voluntarily disclosing private information, by playing a confirmatory role in an agency setting where voluntary disclosures are motivated by the desire to achieve efficient contracting. The firm releases earnings reports at varying mandated intervals, but voluntary disclosures are more informative about “true” earnings in their

setting because they are based on managers' private information. They find that increased mandatory reporting results in more informative voluntary disclosures by managers. Stocken [2000] argues that in the absence of a mechanism to enforce verifiability, voluntary disclosures are not credible and therefore are ignored by the market. However, accounting reports that verify information in managers' voluntary disclosures make these disclosures credible and thus informative in equilibrium. In a similar vein, Lundholm [2003] argues that even though the mandatory report is backward-looking and therefore has no informational content, it improves the credibility of voluntary disclosure. Ball [2006] argues that when managers believe accounting numbers are more likely to be reported accurately and independently (mandatory reporting), they are less likely to disclose misleading information about their expectations (voluntary disclosure). LaFond and Watts [2008] argue that verifiable "hard" information on current performance provides a benchmark that makes it possible for alternative "soft" sources to generate credible information on unverifiable gains. Recent empirical work has aimed at testing this complementary effect. For example, Ball et al. [2012a] find that firms that commit to higher audit fees (a measure of financial statement verification) is associated with management forecasts that are more frequent, specific, timely, accurate and informative to investors.

We use the mandatory adoption of IFRS as an exogenous improvement in the quality of mandatory reporting. The stated objective of IFRS and the predecessor set of standards, International Accounting Standards (IAS), is to produce "high quality" financial statements, such as reflecting economic substance more than legal form, reflecting economic gains and losses in a more timely fashion, and making earnings more informative (Ball [2006]). Consistent with this objective, Barth et al. [2008] find that firms applying IAS have higher accounting quality, evidenced by less earnings management, more timely loss recognition, and more value-relevant

accounting numbers. Landsman et al. [2011] find that the information content of earnings announcements increases following the mandatory adoption of IFRS due to reduced reporting lag, increased analyst following, and increased foreign investment. Collectively, these studies along with the aforementioned theory predict voluntary disclosure to increase following the adoption of IFRS.

On the other hand, mandatory and voluntary disclosures could also be substitutes. The extant voluntary disclosure models capture the effect of changes in mandatory disclosure on the voluntary disclosure of a private signal as changes in a firm's information environment.[5] Specifically, an increase in mandatory disclosure is generally interpreted as either a decrease in the market's prior variance of the firm's liquidation value or as the release of an additional signal correlated with the firm's liquidation value (Verrecchia [1983], [1990]). This literature suggests that an increase in mandatory disclosure leads to a decrease in voluntary disclosure, as private information that was previously conveyed through voluntary disclosure is now directly reflected in mandatory financial reports. In other words, given a fixed amount of information that managers are willing to disclose, when more is disclosed in mandatory reporting, less is left for voluntary disclosure.

Compared to prior domestic accounting standards, IFRS has more extensive disclosure requirements. For example, IFRS has detailed rules on measurement and recognition of financial assets and liabilities and employee benefits, and extensive disclosure requirements on related party transactions, segment information, and cash flow statements, while they are often absent in many countries' domestic accounting standards (e.g., Bae, Tan, and Welker [2008], Nobes [2001]). As a result, disclosures that were previously classified as voluntary may now fall into the mandatory reporting regime under IFRS. In addition, since IFRS produces more timely and

[5] See Verrecchia [2001] for a survey of these models.

value-relevant earnings numbers, the demand for managers to provide supplementary information to help investors better predict future earnings may be reduced. For example, Byard et al.'s [2011] finding that analyst estimates become more accurate following IFRS adoption implies that there might be less demand for management earnings forecasts from analysts (Cotter, Tuna, and Wysocki [2006]). As a result, we may observe a decrease in voluntary disclosure following the mandatory adoption of IFRS.

In sum, the relation between voluntary disclosure and IFRS is an empirical question. We state our first hypothesis as:

Hypothesis H1: Complementary effect (Substitution effect): Voluntary disclosure increases (decreases) following the mandatory adoption of IFRS.

Besides producing high quality financial statements, a major feature of IFRS is "fair value" or "mark-to-market" accounting (Ball [2006]). The fair value orientation of IFRS is most represented by its measurement and recognition rules on financial assets and liabilities, which are often absent in adopting countries' prior domestic GAAP (e.g., Nobes [2001], Bae et al. [2008]).[6] Under IAS 39, financial instruments other than loans and receivables that are not held for trading, securities held to maturity, and qualifying hedges (which must be near perfect to qualify) are required to be recognized at their fair value.[7] However, the fair value of financial instruments is often harder to ascertain. Ball [2006] argues that when liquid market prices of financial assets and liabilities are not available, fair value accounting becomes "mark to model" accounting, under which firms report estimates of market prices, not actual arm's length market prices. This

[6] In addition, IFRS also gives firms an option to choose the revaluation model and measure their property, plant, and equipments, intangible assets, and investment properties at their fair value (IAS 16, 38, and 40). However, Christensen and Nikolaev [2012] find that although IFRS gives firms the choice to use fair value accounting, the majority of firms still choose historical accounting to evaluate their non-financial assets.

[7] In fact, due to its large impact on financial statements of firms in financial industries, the adoption of IAS 39 has been controversial. See Armstrong, Barth, Jagolinzer and Riedl [2010] for detailed discussions on the debate of IAS 39.

introduces “model noise”, due to imperfect pricing models and imperfect estimates of model parameters. This also increases opportunities for manipulation, as managers can influence both the choice of models and the parameter estimates. Even when liquid market prices are available, managers can influence traded as well as quoted prices, and hence be able to manipulate fair value estimates. As a result, the process of determining the correct fair value unavoidably introduces noise to accounting numbers and opens opportunities for managerial manipulation, which makes financial statements prepared under IFRS less independent and less verifiable relative to “historical-cost” oriented domestic GAAP. As argued above, an important role of financial statements is to provide verifiable information to investors and therefore enhance the credibility of voluntary disclosure. When information contained in financial statements become noisy and difficulty to verify, voluntary disclosure loses its credibility among investors. Consistent with this view, Ball et al. [2012b] document that the usage of mark-to-market accounting in securities reduces the likelihood of banks issuing management earnings forecasts, as reported earnings provide a noisier confirmation of the truthfulness of bank managers’ disclosures of private information via earnings forecasts and lessen their credibility among investors.

Therefore, we expect the fair value orientation of IFRS to adversely affect managers’ incentives to provide voluntary disclosure, and this adverse effect is most likely to be present in financial industries where firms have a large possession of financial assets and liabilities to be recognized at fair value.

Hypothesis H2: The increase (decrease) in voluntary disclosure following the mandatory adoption of IFRS is weaker (stronger) in financial industries.

Although all the countries in our treatment sample mandated IFRS at the same time, it is unlikely that the adoption has uniform effects on voluntary disclosure across different sample countries. First, prior to IFRS adoption, each country has drastically different local accounting standards. The change in financial reporting is likely to be small if a country's prior domestic accounting standards were similar to IFRS. Second, due to differences in enforcement strength and the legal environment, the implementation of IFRS is likely to differ across different sample countries, which may lead to different financial reporting practices even under the same set of accounting standards. Consistent with this view, several prior studies document differential effects of IFRS on capital markets and information environment across different countries. For example, Daske, Hail, Leuz, and Verdi [2008] find that the capital-market benefits of IFRS only exist in countries with strong enforcement; Byard et al. [2011] find that IFRS adoption only improves analysts' information environment in countries with both strong enforcement regimes and domestic accounting standards that differ significantly from IFRS; Landsman et al. [2012] find that the improvement in the information content of earnings after IFRS adoption is larger in countries with strong legal enforcement. Following prior literature, we expect the following differential effects of IFRS on voluntary disclosure:

> *Hypothesis H3: The complementary effect (substitution effect) between voluntary disclosure and mandatory adoption of IFRS is stronger in countries with large local GAAP-IFRS difference or strong legal enforcement.*

3. Research Design

We use the mandatory adoption of IFRS as an exogenous change to mandatory reporting and employ a difference-in-difference method to evaluate its average effect on voluntary disclosure. Our basic research design entails estimating the following equation:

$$DISC_{i,j,t} = \beta_1 Post_t \times IFRS_j + \alpha_j + \lambda_t + \gamma X_{i,j,t} + \varepsilon_{i,j,t} \qquad (1)$$

where *i* indexes firms, *j* indexes countries and *t* indexes year, *DISC* is the dependent variable of interest and represents a measure of voluntary disclosure, α is the country fixed effect, λ is the year fixed effect, *Post* is an indicator variable that takes a value of one for fiscal years ending in or after December 2005, *IFRS* is an indicator variable that takes a value of one for countries that mandated IFRS in 2005 (treatment sample), and *X* is a vector of control variables. β_1 measures the impact of IFRS adoption on the dependent variable *DISC* in the treatment sample relative to the control group. We use two variables – *Issue* and *Freq* to measure the level of voluntary disclosure. *Issue* is a dummy variable defined as one if a firm issues at least one management earnings forecast in a given year. *Freq* is a count variable measuring the total number of management forecasts that a firm issues during a year. Both *Issue* and *Freq* are set to zero for firm-years without any management forecasts. A complementary (substitution) effect between IFRS adoption and voluntary disclosure predicts a positive (negative) β_1. We include country and year fixed effects to control for potential country-specific and year-specific factors that may affect voluntary disclosure. This model does not include the main effect variables, *IFRS* and *Post*, as they are absorbed by the country and year fixed effects. We also control for various firm-level variables that might potentially influence firms' voluntary disclosure, including firm size (the natural logarithm of market value of equity, return on assets (net income divided by total assets), market-to-book ratio (market value of equity divided by book value of equity), leverage (long-term debt divided by total assets), earnings volatility (standard deviation of earnings divided by total assets for the past five years, a minimum of three years' data required), and stock return volatility (standard deviation of annual buy-and-hold stock returns over the past five years, a minimum of three years' data required). Firm size is generally positively associated with

management forecasts, as the costs of issuing forecasts are lower for big firms. The association between management forecasts and the market-to-book ratio, earnings volatility, and stock return volatility is ambiguous. On the one hand, due to forecasting difficulty, firms with higher growth rates or higher volatility may issue fewer management forecasts. On the other hand, since high-growth and more volatile firms often face higher information asymmetry, investors may demand more voluntary disclosures from their managers.

We use the following equation to test H2:

$$DISC_{i,j,t} = \beta_1 Post_t \times IFRS_j + \beta_2 Financial_{i,j,t} + \beta_3 Financial_{i,j,t} \times Post_t \times IFRS_j + \alpha_j + \lambda_t + \gamma X_{i,j,t} + \varepsilon_{i,j,t} \quad (2)$$

where *Financial* is defined as one for firms in financial industries (with SIC between 6000 and 6999). The above model is essentially Equation (1) by allowing β_1 to vary cross firms. H2 suggests that the fair value component of IFRS should reduce voluntary disclosure. Therefore, we predict β_3 to be negative. We do not provide any predictions on β_2, as there is no prior theory suggesting whether firms in financial industries should issue more or fewer management forecasts. The control variables are defined in the same way as those in Equation (1).

We use the following equation to test H3:

$$DISC_{i,j,t} = \beta_1 Post_t \times Conditioning_j + \alpha_j + \lambda_t + \gamma X_{i,j,t} + \varepsilon_{i,j,t} \quad (3)$$

where *Conditioning* is a country-level measure for local GAAP-IFRS differences or the strength of legal enforcement. As we are only interested in the differential treatment effect among countries adopting IFRS, Equation (3) is estimated for the treatment sample only. β_1 also captures the difference-in-difference effect, as countries in the treatment sample with low values of conditioning variables are used as the benchmark. This model does not include the main effect variables, *Conditioning* and *Post*, as they are absorbed by the country and year fixed effects. H3

suggests that the complementary (substitution) effect between of IFRS and management forecasts as documented in Equation (1) is larger in countries with larger local GAAP-IFRS differences or stronger legal enforcement. Therefore, we expect the sign of β_1 to be the same as that in Equation (1). The control variables are defined in the same way as those in Equations (1) and (2).

Following Bae et al. [2008], we use their *gaapdiff1* score to measure the distance between domestic GAAP and IFRS. This score is constructed by examining a list of 21 key accounting items based on the Nobes [2001] GAAP Survey. It is assigned a score of 1 for each item that does not conform to IFRS. The variable *gaapdiff1* is the aggregate score, with a higher value indicating a larger difference between prior domestic GAAP and IFRS. This measure is denoted as *BaeScore* and is reported in Table 1 for each country in our treatment sample and ranges from 0 (South Africa) to 18 (Luxembourg).

Following prior literature, we use the rule of law index (*Law*) of 2005 obtained from Kaufmann, Kraay, and Mastruzzi [2009] to measure the strength of a country's legal enforcement. It is reported in Table 1 for each of our treatment countries and ranges from -1.3 to 1.9. During the mandatory adoption period, there were several concurrent changes in reporting enforcement within the European Union. Daske et al. [2008] and Christensen, Hail, and Leuz [2012] find that the capital market effects of IFRS are stronger for countries within the European Union and attribute this finding to their concurrent efforts to improve governance and enforcement. Following their approach, we use an indicator for European Union membership (*EU*) as an alternative measure for strong enforcement.

4. Empirical Results

4.1 Data and Sample Selection

We start our sample selection process by obtaining data for management earnings forecasts between 2002 and 2010 from Standard & Poor's Capital IQ. Capital IQ started collecting information on corporate guidance in text format from January 2002 for firms across 90 countries using various public sources, including press releases and articles from more than 20,000 news wires and publications, regulatory files, company websites, web agents, conference call transcripts, and investor conference organizer websites. Capital IQ also provides information on company identifiers, forecast headlines, news sources, and forecasting dates in a machine-readable format.

Next, we obtain accounting and stock price data from Compustat Global. We keep the sample period between 2001 and 2009, as we use firm characteristics one year prior to the forecasting date as controls. We include countries that require IFRS adoption in 2005 as the treatment sample. We also include countries that retained domestic accounting standards during the entire sample period as the control sample.[8] We exclude Japan and China from our control group, as management forecasts are fully mandated in Japan (Kato, Skinner, and Kunimura [2009]) and are partially mandated in China (Huang, Li, Tse, and Tucker [2012]).[9] In addition, as IFRS or IAS is allowed but not mandated in some of the countries in our control group, we exclude firm-years from the control sample if IFRS or IAS is voluntarily used to prepare financial statements. We also exclude firm-years in the treatment countries that did not use IFRS for fiscal years ending in or after December 2005 or did not use local accounting standards

[8] We exclude the US from our control sample because it would dominate the sample in terms of observations.
[9] For example, since 2000, firms listed in Chinese stock exchanges have been required to issue loss warnings. Since 2001, firms have been required to issue earnings forecasts if earnings are expected to change more than 50%. Since 2004, firms turning profit from loss also need to issue forecasts.

before the adoption date.[10] To create a clean sample of global firms, we remove those that have public debt, equity or ADRs traded in the US. We delete firm-years that do not disclose the accounting standards used to prepare their financial statements and that do not have enough data to calculate the variables used in our regressions. This selection process generates 32,116 firm-year observations, including 25,791 firm-years from 27 countries in the treatment sample and 6,325 firm-years from seven countries in the control sample. As accounting and stock price data from different countries are often denominated in local currencies, to increase comparability, we convert all non-ratio variables into US dollars using the exchange rate at the fiscal year end.

We merge management forecast data from Capital IQ with the firm-level data from Compustat Global using Gvkey and the calendar year of forecasting date. To mitigate the potential impact of outliers, we winsorize all continuous variables at 1% and 99%.

Table 1 presents the sample distribution by country and year. Large economies, such as United Kingdom, Australia, France and Germany dominate the treatment sample, while Canada, Thailand, and India take up the majority of the control group. Table 2 Panel A reports the average number of management forecasts (*Freq*) issued by firms in the pre- and post-IFRS adoption periods for each sample country. We observe an increase in forecasting frequency in all treatment countries in the post-adoption period. Forecasting frequency also increased for all the control countries. The observed increase in forecasting frequency in both treatment and control samples could be a result of the increasing popularity of management guidance around the world and/or improved coverage by Capital IQ.[11] Table 2 Panel B reports summary statistics of regression variables in the pre- and post-IFRS adoption periods for the treatment and control

[10] Firms in our treatment countries that do not use IFRS after the mandatory adoption date might be those being exempted from mandatory adoption. For example, in certain countries firms may be allowed to follow US GAAP for financial reporting. These observations are removed in our analysis to create a cleaner comparison between local GAAP in the pre-adoption period and IFRS in the post-adoption period.

[11] We address the issue of Capital IQ coverage in our robustness analyses in Section 4.3.

samples separately, along with differences in means between pre- and post-IFRS adoption. For firms in our treatment sample, 46.8% firms issued management forecasts in the post-adoption period relative to 11.9% in the pre-adoption period, and the average forecast frequency also increased by 0.762 post-adoption. Both of these increases are statistically significant. For firms in the control group, only 14% more firms issued forecasts in the post-adoption period and the average forecast frequency only increased by 0.182. The last two columns report the mean difference-in-difference and *t* statistics. Both *Issue* and *Freq* have positive and significant difference-in-difference means, suggesting that the increase of management forecasts after IFRS adoption is larger for firms in our treatment group relative to those in the control group. This table also suggests that firms in our treatment sample experience larger increases in firm size, market-to-book ratio, and leverage in the post-adoption period relative to the control group, which may partially explain the increase in management forecasts. In addition, we also observe an increase in liquidity post-adoption, consistent with the findings in Daske et al. [2008].

4.2 Effect of IFRS on Management Forecasts

A. Baseline analysis

Table 3 presents the difference-in-difference regression results for Equation (1). We report the regression coefficients and standard errors (in parentheses) adjusted for firm-level clustering.[12] In the first two columns, we use a Poisson model to investigate whether firms change their forecasting frequency after IFRS adoption.[13] Consistent with the complementary effect in H1, the coefficients on *Post×IFRS* are positive and significant at 1% level in models with or without controls for firm characteristics. Therefore, a coefficient of 0.4444 in Column (2)

[12] We get qualitatively similar results if we cluster standard errors by country.
[13] We use a Poisson model because our dependent variable is a count variable. Our conclusions remain unchanged if we use OLS.

implies a marginal effect of 0.2039, i.e. the average increase in forecasting frequency in the post-adoption period for an IFRS-adopting firm is 0.2 higher than that for a non-IFRS firm. We report a Pseudo R-square of 0.228, suggesting that our model explains about 22.8% of the variation in forecasting frequency. In the last two columns, we use a Logit model to investigate whether firms' propensity to issue forecasts changes after adopting IFRS. A positive and significant coefficient of 0.5146 on *Post×IFRS* suggests that IFRS firms are 10.85% more likely to issue management forecasts relative to non-IFRS firms after the adoption. Combined together, these results suggest that both the frequency and likelihood of management forecasts increase significantly following IFRS adoption.

In terms of the control variables, we find that larger firms issue more forecasts, potentially due to lower costs associated with forecasting. Positive coefficients on *ROA* suggest that well-performing firms are more willing to voluntarily disclose future earnings. Positive coefficients on return volatility indicate that firms may issue more voluntary disclosure to reduce high uncertainty for future prospects.

B. Analysis on fair value component of IFRS

Table 4 presents the regression results for Equation (2). As above, we use a Poisson model for the regressions on *Freq* and a Logit model for regressions on *Issue*. Consistent with the argument in H2 that fair value accounting is an impediment for more voluntary disclosure, we find the coefficients on *Post×IFRS×Financial* to be negative and significant at the 1% level in all model specifications. Consistent with our findings in Table 3, we continue to document positive and significant coefficients on *Post×IFRS* and the magnitudes are larger than the magnitudes of those on *Post×IFRS×Financial*. Taken together, these results suggest that

although the positive effect of IFRS on management forecasts is significantly lower for firms in financial industries potentially due to the impact of fair value accounting, the positive effect still outweighs the negative effect. The coefficients on the control variables and the reported R-squares are largely comparable to those reported in Table 3.

C. Cross-sectional analysis on GAAP difference and legal enforcement

Table 5 reports the regression results for Equation (3) using observations only from the treatment sample. As above, we use a Poisson model for the regressions on *Freq* and a Logit model for regressions on *Issue*. Consistent with the argument in H3 that the effect of IFRS on management forecasts is stronger in countries where the difference between prior local GAAP and IFRS is larger, we document positive and significant coefficients on *Post×BaeScore* in both regressions. Similarly, positive coefficients on *Post×Law* and *Post×EU* suggest that the positive effect of IFRS on management forecasts is more pronounced in countries with strong legal enforcement. These results mitigate the concern that the observed changes in management forecasting behavior are due to alternative events that occurred concurrent to IFRS. Any omitted alternative event is unlikely to generate a similar cross-sectional variation in the treatment effect.

The coefficients on the control variables and the reported R-squares are largely comparable to those reported in Tables 3 and 4, suggesting that the association between firm characteristics and management forecasts is similar across our treatment and control samples.

4.3 Robustness tests

A. Litigation risk

Prior literature suggests that litigation risk is a determinant of voluntary disclosure. For example, Skinner (1994) finds that firms voluntarily issue management forecasts, especially

those containing bad news, to avoid potential shareholder lawsuits. Given that litigation risk may also be positively associated with mandatory disclosure quality, it could be a correlated omitted variable in the documented positive association between mandatory and voluntary disclosures (Ball et al. [2012a]). Although this is less of a concern in our setting because IFRS is an exogenously imposed reform that improves mandatory reporting and we use a difference-in-difference model, there is a possibility that firms may face higher litigation risk following IFRS adoption due to concurrent changes in enforcement (Christensen et al. [2012]).

Following prior literature, we identify firms that face high litigation risk and estimate the following model:

$$DISC_{i,j,t} = \beta_1 Post_t \times IFRS_j + \beta_2 Litigation_{i,j,t} + \beta_3 Litigation_{i,j,t} \times Post_t \times IFRS_j + \alpha_j + \lambda_t + \gamma X_{i,j,t} + \varepsilon_{i,j,t} \quad (4)$$

where *Litigation* is a dummy variable that is defined as one for firms from regulated industries (SIC codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, 7370-7374 and 8731-8734), and zero otherwise. We expect β_2 to be positive and significant, as firms facing higher litigation risk are more likely to issue management forecasts. We do not have any predictions on the sign of β_3. On one hand, the difference in litigation risk faced by firms in regulated industries and unregulated industries might be reduced due to elevated enforcement across all industries after IFRS adoption, which predicts a negative sign of β_3. On the other hand, regulated industries might be more affected by strengthened enforcement following IFRS adoption, which would predict a positive sign on β_3. Regardless of the sign of β_3, if IFRS adoption results in more management forecasts, we expect $\beta_2 + \beta_3$ to be positive. The results as reported in Table 6 Panel A are consistent with this expectation and suggest that our findings in Table 3 are unlikely to be driven by litigation risk being a correlated omitted variable. In addition, the negative coefficients on *Post×IFRS×Litigation* suggest that litigation risk becomes a less important determinant of

management forecasts following IFRS adoption, potentially due to elevated enforcement across all industries.

B. Capital IQ coverage

A common concern about databases that provide machine-readable information for management forecasts is their completeness and biases in coverage. For example, by comparing management forecasts provided by Thomson First Call's Company Issued Guidance database with a random sample of management forecasts hand-collected from newswires, Chuk, Matsumoto, and Miller [2012] find that the former tends to cover large firms with high analyst following and high institutional ownership and that the coverage is more complete after 1997. Although Capital IQ uses a different data collection process from First Call, it might not be immune from this criticism.[14] In particular, we cannot distinguish when a firm did not issue any management forecasts in a certain year from when the firm was not covered by Capital IQ in that particular year. As a result, our finding that management forecasts increased following IFRS adoption could be driven by Capital IQ's expanded coverage over time. Although our difference-in-difference research design already takes into account any systematic time trends existing in the data, one may argue that the coverage expansion might be more in favor of the treatment sample which includes some small economies. If this were the case, having a control group would not entirely control for such a bias. We conduct four robustness tests to address this concern. First, we remove countries with less than 100 observations from the sample. By doing so, we mitigate the concern that our results are driven by a bias in Capital IQ's coverage expansion towards small economies. Second, we repeat the analysis on *Freq* after removing all non-forecasters from the sample. In other words, we only keep firm-years that have at least one

[14] Capital IQ simply provides all management forecasts in text format and does not code the content of forecasts. Therefore, the bias in First Call that quantitative and bad news forecasts are more likely to be covered (Chuk et al. [2012]) is unlikely to apply to Capital IQ.

management forecast. *Freq*, therefore, is measuring how often a firm updates its management forecasts conditioning on the firm being a forecaster covered by Capital IQ. Third, we limit our sample period to 2004-2010, as Radhakrishnan et al. (2012) suggest that the coverage of Capital IQ is likely to be more complete after 2004. Fourth, we remove countries that did not have any forecasters in the pre-adoption period. This approach mitigates the concern that Capital IQ only started covering certain sample countries in the post-adoption period. The robustness regression results are reported in Table 6 Panel B (Criteria 1 to 4). Although the coefficients on *Post×IFRS* are smaller in certain sample specifications compared to those reported in Table 3, they continue to be positive and significant at the 1% level throughout all regressions. Therefore, we take comfort that our main finding that management forecasts increased after IFRS adoption is unlikely to be driven by potential coverage biases existing in Capital IQ.

C. Sample composition

One may argue that due to firms being added to or dropping out of the dataset at different points in time, sample composition in the pre-IFRS adoption period might be different from that in the post-adoption period. To address this issue, we create a constant sample by requiring each firm to exist in both pre- and post-adoption periods. The results as reported in the last two columns of Table 6 Panel B are very similar to those reported in Table 3, suggesting that our finding is unlikely to be driven by differences in sample composition.

4.4 Effect of IFRS and Management Forecasts on Liquidity

Our main analysis above provides evidence consistent with the complementary effect of mandatory and voluntary disclosures. Specifically, we find that mandatory adoption of IFRS leads to an increase in management forecasts. Next, we examine the effect of this relation on

liquidity. This analysis serves two purposes. First, if the increase in the quality of financial standards improves the reliability of voluntary disclosures as per the confirmatory role of mandatory financial reporting, one should observe a greater level of liquidity associated with voluntary disclosures post-IFRS adoption. Second, the capital market effect of IFRS has been heavily debated on. Early evidence suggests positive capital market effects around the worldwide introduction of IFRS (e.g., Daske et al. [2008], Armstrong et al. [2010]. Byard et al. [2011], Tan, Wang, and Welker [2011]). However, subsequent studies have cautioned that the capital market benefits of IFRS may have been overstated in prior literature (see Hail, Leuz, and Wysocki [2010] for a survey). For example, Daske et al. [2008] show that market liquidity increases only in countries with strong legal enforcement. In a similar vein, Christensen et al. [2012] argue that the observed capital market effects of IFRS may be wholly attributable to concurrent enforcement changes. Thus, examining liquidity effects conditional on voluntary disclosure furthers our understanding of the mechanism through which mandatory IFRS adoption affects capital markets. In order to examine the liquidity effects, we use the following regression specification:

$$\begin{aligned} Illiq_{i,j,t} = \quad & \beta_1 Post_i \times IFRS_j + \beta_2 DISC_{i,j,t} + \beta_3 Post_i \times IFRS_j \times DISC_{i,j,t} \\ & + \alpha_j + \lambda_t + \gamma X_{i,j,t} + \varepsilon_{i,j,t} \end{aligned} \tag{5}$$

where *Illiq* is an inverse measure for liquidity and it is based on a factor score extracted from three liquidity variables using factor analysis: zero returns, price impact, and bid-ask spreads.[15] We also employ a decile rank transformation of the common factor, *Rank_Illiq*. *Illiq* and *Rank_Illiq* are measured as of month +7 after the fiscal year-end. These variables are coded such

[15] Zero returns is the fraction of trading days with zero returns in a quarter. Following Lesmond, Ogden, and Trzcinka [1999] and Goyenko, Holden, and Trzcinka [2009], we use daily CRPS data (CRSP variables *ret* and *vol*) to calculate the fraction of trading days with positive trading volume (*vol* > 0) and zero returns (*ret* = 0) during the month. Price impact is the Amihud [2002] illiquidity measure. We use daily CRSP data (CRSP variables *ret*, *prc*, and *vol*) to calculate the ratio of absolute stock return to dollar volume [1,000,000×|*ret*|÷(|*prc*|×*vol*)] for each day in the month. To construct the bid-ask spreads, we use daily closing bid and ask data from CRSP (CRSP variables *ask* and *bid*) to calculate 100×(*ask*–*bid*)/[(*ask*+*bid*)/2]. We then average these daily bid-ask spreads over the month.

that higher values imply lower liquidity. All other variables are as defined above. Following prior literature that examines liquidity, we control for various firm-level variables that might potentially influence liquidity, including firm size (*Size*), stock return volatility (*RetVol*) and trading volume (*Turnover*). Further, given prior evidence that the capital-market effects are concentrated in member states of the European Union (EU) we restrict our treatment sample to firms in these states (Daske et al. [2008]).

Table 7 presents the results of our liquidity analysis. First, we note that the coefficients on *Post*×*IFRS* are negative and significant across all model specifications. This result is consistent with evidence in prior literature that mandatory IFRS adoption resulted in increased liquidity for EU firms. More importantly, we find that the coefficients on *Post*×*IFRS*×*Freq* and *Post*×*IFRS*×*Issue* are negative and significant. Thus, firms which increased voluntary disclosure post-IFRS experienced a greater increase in liquidity and that the increase in liquidity is proportional to the increase in the level of voluntary disclosure. The findings in this table suggest that the increase in the quality of financial standards improves the reliability of voluntary disclosures. Further, at least some of the post-IFRS liquidity benefits documented in prior literature is attributable to increased voluntary disclosure as a result of the confirmatory role of IFRS.

5. Conclusion

Mandated financial reporting and voluntary disclosure are two important channels of corporate disclosure by which managers communicate private information with capital markets. Yet, the interplay between these channels has not been well understood. On the one hand, mandatory financial reporting and voluntary disclosure can be complements, as the former produces verifiable information that improves the credibility of the latter and therefore

encourages managers to issue more forecasts. On the other hand, the two constructs can be substitutes wherein voluntary disclosure supplements inadequacies in the information communicated through mandatory reporting. Thus, the relation between these two channels is largely an empirical question.

Using mandatory IFRS adoption in 2005 across 27 countries as an exogenous improvement of mandatory financial reporting quality, we document an increase in the likelihood and frequency of management forecast issuance relative to firms in non-IFRS adopting countries. This increase is both statistically and economically significant and is robust to various model specifications addressing the concerns about differences in data coverage and sample composition in the pre- and post-adoption periods. We also find that the increase in management forecasts following IFRS adoption is larger in countries where the difference between a country's prior domestic accounting standards and IFRS is bigger or legal enforcement is stronger. These findings suggest a confirmatory role of IFRS.

A key feature of IFRS is fair value accounting, which could potentially reduce the confirmatory effect of financial statements prepared under IFRS and be an impediment to more voluntary disclosure. Consistent with this view, we find that firms in financial industries, which are most likely to be affected by fair value rules, exhibit a lower increase in management forecasts following IFRS adoption.

Finally, we examine the liquidity effects of IFRS adoption and management forecasts. Consistent with prior studies, we document an increase in liquidity following IFRS. More importantly, we document that the increase in liquidity is much larger for firms with more management forecasts. This finding complements prior literature by establishing an alternate mechanism through which mandatory IFRS adoption affects capital markets.

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Table 1 Panel A: Sample Composition and Institutional Variables by Country

Country	N			
IFRS countries (Treatment sample N=25,791)				
		Difference between Local GAAP and IFRS	Legal Enforcement	Membership in the European Union
Australia	3,014	4	1.7	No
Austria	361	12	1.8	Yes
Belgium	568	13	1.4	Yes
Czech Republic	50	14	0.7	Yes
Denmark	948	11	1.9	Yes
Finland	930	15	1.9	Yes
France	2,309	12	1.3	Yes
Germany	2,564	11	1.7	Yes
Greece	453	17	0.7	Yes
Hong Kong	794	3	1.5	No
Hungary	80	13	0.7	Yes
Iceland	34	N.A.	N.A.	No
Ireland	202	1	1.6	Yes
Italy	1,256	12	0.5	Yes
Lativa	67	N.A.	N.A.	Yes
Luxembourg	25	18	1.9	Yes
Netherlands	603	4	1.7	Yes
Norway	675	7	1.9	No
Philippines	324	10	-0.4	No
Poland	701	12	0.3	Yes
Portugal	220	13	1.1	Yes
Slovenia	115	9	N.A.	Yes
Spain	626	16	1.1	Yes
South Africa	1,260	0	0.2	No
Sweden	1,023	10	1.8	Yes
Switzerland	827	12	2	No
United Kingdom	5,762	1	1.6	Yes
Non-IFRS countries (Control sample N=6,325)				
Brazil	235	N.A.	N.A.	No
Canada	2,321	N.A.	N.A.	No
India	1,316	N.A.	N.A.	No
Indonesia	816	N.A.	N.A.	No
Mexico	108	N.A.	N.A.	No
Taiwan	693	N.A.	N.A.	No
Thailand	836	N.A.	N.A.	No

Table 1 Panel B: Sample Composition by Year

Year	N
	IFRS countries
2002	2,250
2003	2,455
2004	2,552
2005	2,867
2006	2,556
2007	2,735
2008	3,021
2009	3,628
2010	3,727
Total	25,791
	Non-IFRS countries
2002	357
2003	455
2004	475
2005	623
2006	723
2007	816
2008	909
2009	1,000
2010	967
Total	6,325

The treatment sample includes 25,791 firm-years from countries that mandate IFRS adoption in December 2005. The control sample includes 6,325 firm-years from countries that do not require IFRS reporting during our sample period. Panel A reports the number of firm-years by country and the institutional variables for the treatment group. Difference between Local GAAP and IFRS is based on the Bae et al. (2008) summary score *gaafdiff1*of how domestic GAAP differs from IAS on 21 key accounting dimensions. Legal Enforcement is based on the rule of law variable for the year 2005 from Kaufmann et al. (2009). We also indicate whether a country is a member of the European Union (EU). Panel B reports the number of firm-years in the treatment and control samples by year.

Table 2 Panel A: Management Forecast Frequency Before and After IFRS Adoption by Country

Pre-IFRS adoption (Post=0)		Post-IFRS adoption (Post=1)	
IFRS countries			
Australia	0.3553	Australia	1.3683
Austria	0.0263	Austria	1.4149
Belgium	0.1104	Belgium	0.8333
Czech Republic	0.0419	Czech Republic	0.7848
Denmark	0.1596	Denmark	2.2760
Finland	0.2000	Finland	1.8415
France	0.0975	France	0.8187
Germany	0.1043	Germany	1.6519
Greece	0.0541	Greece	0.4474
Hong Kong	0.0173	Hong Kong	0.4273
Hungary	0.1429	Hungary	0.9726
Iceland	0.0000	Iceland	0.7308
Ireland	0.0882	Ireland	1.3433
Italy	0.1168	Italy	0.6926
Lativa	0.0000	Lativa	0.6379
Luxembourg	0.3333	Luxembourg	1.5263
Netherlands	0.2183	Netherlands	1.1305
Norway	0.0414	Norway	0.3656
Philippines	0.0873	Philippines	0.6667
Poland	0.1061	Poland	0.5528
Portugal	0.0159	Portugal	0.5478
Slovenia	0.0345	Slovenia	1.1395
South Africa	0.1625	South Africa	0.2977
Spain	0.1852	Spain	0.5721
Sweden	0.0703	Sweden	0.5330
Switzerland	0.0000	Switzerland	1.3182
United Kingdom	0.1306	United Kingdom	0.5168
Non-IFRS countries			
Brazil	0.0200	Brazil	0.2270
Canada	0.3281	Canada	0.5420
India	0.1202	India	0.2964
Indonesia	0.1359	Indonesia	0.4803
Mexico	0.0645	Mexico	0.4805
Taiwan	0.3117	Taiwan	0.3135
Thailand	0.2727	Thailand	0.4296

Table 2 Panel B: Descriptive Statistics

	Pre-IFRS adoption (Post=0)						Post-IFRS adoption (Post=1)						Difference (Post-Pre)		Diff-in-diff (IFRS-Non-IFRS)	
Variable	**N**	**Mean**	**Q1**	**Median**	**Q3**	**Std Dev**	**N**	**Mean**	**Q1**	**Median**	**Q3**	**Std Dev**	**Mean**	**t**	**Mean**	**t**
IFRS countries (treatment sample, i.e. IFRS=1)																
Freq	8399	0.165	0.000	0.000	0.000	0.520	17392	0.927	0.000	0.000	1.000	1.320	0.762	66.21	0.580	22.56
Issue	8399	0.119	0.000	0.000	0.000	0.324	17392	0.468	0.000	0.000	1.000	0.499	0.349	67.30	0.209	17.00
Size	8399	4.713	3.320	4.665	6.045	1.935	17392	5.416	3.954	5.353	6.837	1.996	0.703	27.06	0.329	4.86
ROA	8399	0.065	0.032	0.093	0.149	0.238	17392	0.081	0.042	0.093	0.145	0.180	0.016	5.29	0.007	1.30
MTB	8399	2.134	0.861	1.409	2.418	2.396	17392	2.328	0.958	1.618	2.783	2.402	0.195	6.12	0.253	2.79
Leverage	8399	0.201	0.038	0.178	0.318	0.175	17392	0.214	0.051	0.190	0.330	0.181	0.013	5.51	0.017	2.70
EarnVol	8399	0.138	0.015	0.036	0.097	0.839	17392	0.135	0.016	0.036	0.082	2.286	-0.004	-0.18	0.010	0.51
Ln(RetVol)	8399	-2.176	-2.564	-2.213	-1.818	0.576	17392	-2.209	-2.593	-2.220	-1.847	0.557	-0.033	-4.31	0.015	0.82
ILLIQ	4222	0.434	-0.234	0.351	1.073	0.874	11880	0.076	-0.616	-0.039	0.585	0.898	-0.358	-22.71	-0.161	-4.58
Non-IFRS countries(control sample, i.e. IFRS=0)																
Freq	1459	0.244	0.000	0.000	0.000	0.750	4866	0.426	0.000	0.000	1.000	0.837	0.182	7.90		
Issue	1459	0.141	0.000	0.000	0.000	0.348	4866	0.280	0.000	0.000	1.000	0.449	0.140	12.52		
Size	1459	4.819	3.353	4.561	6.186	2.127	4866	5.194	3.741	5.089	6.582	1.976	0.374	5.99		
ROA	1459	0.097	0.051	0.105	0.163	0.170	4866	0.105	0.057	0.107	0.166	0.148	0.008	1.64		
MTB	1459	2.237	0.823	1.397	2.367	2.946	4866	2.179	0.855	1.440	2.429	2.503	-0.058	-0.69		
Leverage	1459	0.236	0.053	0.207	0.362	0.200	4866	0.232	0.055	0.210	0.371	0.191	-0.004	-0.71		
EarnVol	1459	0.086	0.019	0.038	0.084	0.175	4866	0.072	0.018	0.034	0.068	0.199	-0.014	-2.59		
Ln(RetVol)	1459	-2.008	-2.355	-2.007	-1.637	0.576	4866	-2.056	-2.401	-2.053	-1.701	0.534	-0.048	-2.84		
ILLIQ	942	-0.515	-1.125	-0.717	-0.039	0.837	3446	-0.712	-1.389	-0.945	-0.157	0.922	-0.197	-6.25		

Table 2 presents summary statistics for the dependent variables and the control variables used in the analyses. The treatment sample includes 25,791 firm-years from countries that mandate IFRS adoption in December 2005. The control sample includes 6,325 firm-years from countries that do not require IFRS reporting during our sample period. Panel A reports average management forecast frequency (*Freq*) by country for the pre- and post-IFRS adoption periods. *Freq* is the number of management forecasts issued in year t. *Post* is an indicator variable equal to one if a firm-year falls in or after 2005. Panel B reports summary statistics

by group for the pre- and post-IFRS adoption periods. *Issue* is an indicator variable equal to one if a firm issues at least one management forecast in year t. *Size* is the natural log of market value. *ROA* is net income divided by total assets. *MTB* is the market-to-book ratio. *Leverage* is long-term debt divided by total assets. *EarnVol* is the standard deviation of annual earnings divided by total assets over the past five years, minimum three years' data required. *RetVol* is the standard deviation of annual stock returns over the past five years, minimum three years' data required. *ILLIQ* is the liquidity factor score extracted from three liquidity variables (zero returns, price impact, and bid-ask spreads) using factor analysis with oblique rotation. *Size*, *ROA*, *MTB*, *Leverage*, *EarnVol*, and *RetVol* are measured in year t-1.

Table 3: Voluntary Disclosure Effects of IFRS Adoption

	Dependent Variable = Freq		*Dependent Variable = Issue*	
Post×IFRS	0.5103***	0.4444***	0.5579***	0.5146***
	(0.072)	(0.072)	(0.083)	(0.085)
Size		0.1893***		0.2251***
		(0.007)		(0.009)
ROA		0.5174***		0.7237***
		(0.080)		(0.111)
MTB		-0.0003		-0.0003
		(0.000)		(0.000)
Leverage		0.0071		-0.0776
		(0.064)		(0.090)
EarnVol		0.0021		0.0104
		(0.003)		(0.010)
Ln(RetVol)		0.1726***		0.2482***
		(0.021)		(0.031)
Year Fixed Effects	Y	Y	Y	Y
Country Fixed Effects	Y	Y	Y	Y
Pseudo Rsq	0.193	0.228	0.177	0.202
Observations	32,116	32,116	32,116	32,116

This table presents results on voluntary disclosure effects of IFRS using 32,116 firm-year observations from the treatment and control samples. We employ Poisson (Logit) regressions when the dependent variable is *Freq* (*Issue*). *Freq* is the number of management forecasts issued in year t. *Issue* is an indicator variable equal to one if a firm issues at least one management forecast in year t. *Post* is an indicator variable equal to one if a firm-year falls in or after 2005. *IFRS* is an indicator variable equal to one for countries that mandate IFRS adoption in December 2005. *Size* is the natural log of market value. *ROA* is net income divided by total assets. *MTB* is the market-to-book ratio. *Leverage* is long-term debt divided by total assets. *EarnVol* is the standard deviation of annual earnings divided by total assets over the past five years, minimum three years' data required. *RetVol* is the standard deviation of annual stock returns over the past five years, minimum three years' data required. *Size*, *ROA*, *MTB*, *Leverage*, *EarnVol*, and *RetVol* are measured in year t-1. We report coefficient estimates and standard errors (in parentheses) based on robust standard errors clustered by firm with year and country fixed effects included. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 4: Cross-Sectional Analysis of Voluntary Disclosure Effects of IFRS Adoption

	Dependent Variable = Freq	*Dependent Variable = Issue*	*Dependent Variable = Freq*	*Dependent Variable = Issue*
Post*IFRS	0.5520***	0.6267***	0.4874***	0.5883***
	(0.074)	(0.084)	(0.073)	(0.086)
Financial	-0.0979	-0.1168	-0.1818**	-0.2197***
	(0.078)	(0.079)	(0.073)	(0.078)
Post×IFRS×Financial	**-0.2332*** **	**-0.3607*** **	**-0.2638*** **	**-0.4273*** **
	(0.085)	**(0.091)**	(0.080)	(0.091)
Size			0.2006***	0.2434***
			(0.007)	(0.009)
ROA			0.3474***	0.5498***
			(0.077)	(0.108)
MTB			-0.0003	-0.0003
			(0.000)	(0.000)
Leverage			0.0590	-0.0193
			(0.066)	(0.090)
EarnVol			0.0022	0.0107
			(0.004)	(0.009)
Ln(RetVol)			0.1531***	0.2251***
			(0.021)	(0.031)
Year Fixed Effects	Y	Y	Y	Y
Country Fixed Effects	Y	Y	Y	Y
Pseudo Rsq	0.196	0.180	0.233	0.207
Observations	32,116	32,116	32,116	32,116

We employ Poisson (Logit) regressions when the dependent variable is *Freq* (*Issue*). *Financial* is an indicator variable equal to one if a firm is in the financial industry (i.e. in SIC codes 6001-6999). *Freq* is the number of management forecasts issued in year t. *Issue* is an indicator variable equal to one if a firm issues at least one management forecast in year t. *Post* is an indicator variable equal to one if a firm-year falls in or after 2005. *IFRS* is an indicator variable equal to one for countries that mandate IFRS adoption in December 2005. *Size* is the natural log of market value. *ROA* is net income divided by total assets. *MTB* is the market-to-book ratio. *Leverage* is long-term debt divided by total assets. *EarnVol* is the standard deviation of annual earnings divided by total assets over the past five years, minimum three years' data required. *RetVol* is the standard deviation of annual stock returns over the past five years, minimum three years' data required. *Size*, *ROA*, *MTB*, *Leverage*, *EarnVol*, and *RetVol* are measured in year t-1. We report coefficient estimates and standard errors (in parentheses) based on robust standard errors clustered by firm with year and country fixed effects included. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 5: Cross-Sectional Analysis of Voluntary Disclosure Effects Conditional on IFRS Adoption

	Dependent Variable = Freq			*Dependent Variable = Issue*		
	Difference between Local GAAP and IFRS (BaeScore)	Legal Enforcement (Law)	Membership in the European Union (*EU*=1)	Difference between Local GAAP and IFRS (BaeScore)	Legal Enforcement (Law)	Membership in the European Union (*EU*=1)
Post×Conditioning	**0.0261*** **	**0.0992*** **	**0.1681*** **	**0.0238** **	**0.1731*** **	**0.0799**
	(0.007)	**(0.037)**	**(0.065)**	**(0.009)**	**(0.056)**	**(0.090)**
Size	0.1892***	0.1892***	0.1900***	0.2428***	0.2424***	0.2436***
	(0.007)	(0.007)	(0.007)	(0.012)	(0.012)	(0.012)
ROA	0.5639***	0.5612***	0.5629***	0.9031***	0.9112***	0.8994***
	(0.091)	(0.091)	(0.091)	(0.147)	(0.148)	(0.148)
MTB	-0.0011	-0.0011	-0.0011	-0.0005	-0.0005	-0.0005
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Leverage	0.0876	0.0866	0.0882	-0.0203	-0.0198	-0.0193
	(0.070)	(0.070)	(0.070)	(0.111)	(0.111)	(0.111)
EarnVol	0.0025	0.0024	0.0025	0.0122	0.0121	0.0121
	(0.003)	(0.003)	(0.003)	(0.011)	(0.011)	(0.011)
Ln(RetVol)	0.1612***	0.1613***	0.1632***	0.2554***	0.2583***	0.2561***
	(0.024)	(0.024)	(0.024)	(0.040)	(0.040)	(0.040)
	Country and Year Fixed Effects Included			Country and Year Fixed Effects Included		
Pseudo Rsq	0.246	0.246	0.246	0.229	0.229	0.229
Observations	25,791	25,791	25,791	25,791	25,791	25,791

This table presents results on voluntary disclosure effects of IFRS and country-level institutional characteristics for 25,791 firm-years from the treatment sample. We employ Poisson (Logit) regressions when the dependent variable is *Freq* (*Issue*). *BaeScore* is the difference between Local GAAP and IFRS, based on the Bae et al. (2008) *gaapdiff1* score of how domestic GAAP differs from IAS on 21 key accounting dimensions. *Law* is the rule of law variable for the year 2005 from Kaufmann et al. (2009). *EU* is an indicator variable equal to one for member states in the European Union. *Freq* is the number of management forecasts issued in year t. *Issue* is an indicator variable equal to one if a firm issues at least one management forecast in year t. *Post* is an indicator variable equal to one if a firm-year falls in or after 2005. *Size* is the natural log of market value. *ROA* is net income divided by total assets. *MTB* is the market-to-book ratio. *Leverage* is

long-term debt divided by total assets. *EarnVol* is the standard deviation of annual earnings divided by total assets over the past five years, minimum three years' data required. *RetVol* is the standard deviation of annual stock returns over the past five years, minimum three years' data required. *Size*, *ROA*, *MTB*, *Leverage*, *EarnVol*, and *RetVol* are measured in year t-1. We report coefficient estimates and standard errors (in parentheses) based on robust standard errors clustered by firm with year and country fixed effects included. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 6 Panel A: Robustness Test on Litigation Risk

	Dependent Variable = Freq	*Dependent Variable = Issue*	*Dependent Variable = Freq*	*Dependent Variable = Issue*
Post×IFRS	0.5769***	0.5968***	0.4886***	0.5306***
	(0.074)	(0.085)	(0.074)	(0.087)
Litigation	0.3338***	0.3001***	0.4014***	0.3755***
	(0.074)	(0.071)	(0.072)	(0.071)
Post×IFRS×Litigation	**-0.2732*** **	**-0.1613***	**-0.1796** **	**-0.0659**
	(0.079)	**(0.083)**	**(0.077)**	**(0.084)**
Size			0.1968***	0.2338***
			(0.007)	(0.009)
ROA			0.5114***	0.7278***
			(0.078)	(0.111)
MTB			-0.0003	-0.0003
			(0.000)	(0.000)
Leverage			0.1164*	0.0569
			(0.064)	(0.090)
EarnVol			0.0023	0.0110
			(0.003)	(0.010)
Ln(RetVol)			0.1606***	0.2301***
			(0.021)	(0.031)
Year Fixed Effects	Y	Y	Y	Y
Country Fixed Effects	Y	Y	Y	Y
Pseudo Rsq	0.194	0.178	0.231	0.205
Observations	32,116	32,116	32,116	32,116

We employ Poisson (logit) regressions when the dependent variable is *Freq* (*Issue*). *Litigation* is an indicator variable equal to one if a firm is in a high litigation risk industry (i.e. in SIC codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, 7370-7374 and 8731-8734). *Freq* is the number of management forecasts issued in year t. *Issue* is an indicator variable equal to one if a firm issues at least one management forecast in year t. *Post* is an indicator variable equal to one if a firm-year falls in or after 2005. *IFRS* is an indicator variable equal to one for countries that mandate IFRS adoption in December 2005. *Size* is the natural log of market value. *ROA* is net income divided by total assets. *MTB* is the market-to-book ratio. *Leverage* is long-term debt divided by total assets. *EarnVol* is the standard deviation of annual earnings divided by total assets over the past five years, minimum three years' data required. *RetVol* is the standard deviation of annual stock returns over the past five years, minimum three years' data required. *Size*, *ROA*, *MTB*, *Leverage*, *EarnVol*, and *RetVol* are measured in year t-1. We report coefficient estimates and standard errors (in parentheses) based on robust standard errors clustered by firm with year and country fixed effects included. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 6 Panel B: Robustness Test on Different Sample Specifications

	Criteria 1: Remove countries with less than 100 observations		Criteria 2: Remove non-forecasters	Criteria 3: Begin sample period in 2004		Criteria 4: Remove countries with no forecasters in pre-IFRS period		Criteria 5: Retain constant sample in pre- and post-IFRS periods	
	Freq	*Issue*	*Freq*	*Freq*	*Issue*	*Freq*	*Issue*	*Freq*	*Issue*
Post×IFRS	0.4438***	0.5133***	0.1885***	0.3365***	0.3579***	0.4450***	0.5153***	0.4832***	0.5122***
	(0.072)	(0.085)	(0.035)	(0.065)	(0.079)	(0.072)	(0.085)	(0.077)	(0.091)
Size	0.1892***	0.2264***	0.0850***	0.1892***	0.2249***	0.1890***	0.2255***	0.1901***	0.2340***
	(0.007)	(0.009)	(0.004)	(0.007)	(0.009)	(0.007)	(0.009)	(0.009)	(0.011)
ROA	0.5122***	0.7152***	0.0889*	0.5105***	0.7086***	0.5095***	0.7149***	0.6150***	0.7628***
	(0.080)	(0.111)	(0.048)	(0.080)	(0.112)	(0.080)	(0.111)	(0.114)	(0.148)
MTB	-0.0003	-0.0003	-0.0001***	-0.0003	-0.0003	-0.0003	-0.0003	-0.0002	-0.0002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Leverage	0.0040	-0.0836	0.0148	0.0088	-0.0768	0.0089	-0.0788	0.0381	-0.0206
	(0.065)	(0.090)	(0.038)	(0.064)	(0.090)	(0.065)	(0.090)	(0.089)	(0.115)
EarnVol	0.0021	0.0105	-0.0018	0.0021	0.0103	0.0021	0.0104	0.0046**	0.0319
	(0.003)	(0.010)	(0.001)	(0.003)	(0.009)	(0.003)	(0.010)	(0.002)	(0.024)
Ln(RetVol)	0.1710***	0.2474***	0.0534***	0.1719***	0.2472***	0.1701***	0.2463***	0.1403***	0.2076***
	(0.022)	(0.031)	(0.014)	(0.021)	(0.032)	(0.022)	(0.031)	(0.028)	(0.039)
Year Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y
Pseudo Rsq	0.2285	0.2026	0.0583	0.1561	0.1088	0.2281	0.2027	0.2354	0.2169
Observations	31,860	31,860	10,703	26,599	26,599	31,965	31,965	23,181	23,181

We employ Poisson (logit) regressions when the dependent variable is *Freq* (*Issue*). *Freq* is the number of management forecasts issued in year t. *Issue* is an indicator variable equal to one if a firm issues at least one management forecast in year t. *Post* is an indicator variable equal to one if a firm-year falls in or after 2005. *IFRS* is an indicator variable equal to one for countries that mandate IFRS adoption in December 2005. *Size* is the natural log of market value. *ROA* is net income divided by total assets. *MTB* is the market-to-book ratio. *Leverage* is long-term debt divided by total assets. *EarnVol* is the standard deviation of annual

earnings divided by total assets over the past five years, minimum three years' data required. *RetVol* is the standard deviation of annual stock returns over the past five years, minimum three years' data required. *Size*, *ROA*, *MTB*, *Leverage*, *EarnVol*, and *RetVol* are measured in year t-1. We report coefficient estimates and standard errors (in parentheses) based on robust standard errors clustered by firm with year and country fixed effects included. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.

Table 7: Liquidity Effects from IFRS Adoption and Management Forecasts

	Dependent Variable = ILLIQ	Dependent Variable = Rank_ILLIQ		Dependent Variable = ILLIQ	Dependent Variable = Rank_ILLIQ
Post×IFRS	-0.0832***	-0.3228***	Post×IFRS	-0.0769***	-0.3152***
	(0.028)	(0.080)		(0.028)	(0.082)
Freq	-0.0131	0.0030	Issue	-0.0245	-0.0086
	(0.012)	(0.037)		(0.020)	(0.058)
Post×IFRS×Freq	**-0.0666*** **	**-0.2558*** **	**Post×IFRS×Issue**	**-0.1363*** **	**-0.4635*** **
	(0.013)	**(0.040)**		**(0.024)**	**(0.068)**
Size	-0.2883***	-0.8327***	Size	-0.2938***	-0.8514***
	(0.005)	(0.016)		(0.005)	(0.016)
Ln(RetVol)	-0.1387***	-0.4034***	Ln(RetVol)	-0.1403***	-0.4090***
	(0.015)	(0.040)		(0.015)	(0.040)
Ln(Turnover)	-0.1283***	-0.3659***	Ln(Turnover)	-0.1304***	-0.3731***
	(0.005)	(0.014)		(0.005)	(0.014)
Year Fixed Effects	Y	Y	Year Fixed Effects	Y	Y
Country Fixed Effects	Y	Y	Country Fixed Effects	Y	Y
R-squared	0.601	0.623	R-squared	0.613	0.619
Observations	20,490	20,490	Observations	20,490	20,490

This table presents results on liquidity effects from voluntary disclosure and IFRS using 20,490 firm-year observations from the treatment and control samples, where the treatment sample is restricted to countries in the European Union. We employ OLS regression models. *ILLIQ* is the liquidity factor score extracted from three liquidity variables (zero returns, price impact, and bid-ask spreads) using factor analysis with oblique rotation. *Rank_ILLIQ* is the raw Factor score ranked into ten deciles. *Freq* is the number of management forecasts issued in year t. *Issue* is an indicator variable equal to one if a firm issues at least one management forecast in year t. *Post* is an indicator variable equal to one if a firm-year falls in or after 2005. *IFRS* is an indicator variable equal to one for countries that mandate IFRS adoption in December 2005. *Size* is the natural log of market value. *RetVol* is the standard deviation of annual stock returns over the past five years, minimum three years' data required. *Turnover* is the twelve-month median of monthly turnover. *Size, RetVol,* and *Turnover* are measured in year t-1. *ILLIQ* and *Rank_ILLIQ* are measured as of month +7 after the fiscal year-end. We report coefficient estimates and standard errors (in parentheses) based on robust standard errors clustered by firm with year and country fixed effects included. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels (two-tailed), respectively.